

Title (en)
CERAMIC-COPPER COMPOSITE, CERAMIC CIRCUIT BOARD, POWER MODULE, AND METHOD FOR MANUFACTURING CERAMIC-COPPER COMPOSITE

Title (de)
KERAMIK-KUPFERVERBUND, KERAMISCHE LEITERPLATTE, LEISTUNGSMODUL UND VERFAHREN ZUR HERSTELLUNG EINES KERAMIK-KUPFERVERBUNDES

Title (fr)
COMPOSITE CÉRAMIQUE-CUIVRE, CARTE DE CIRCUITS IMPRIMÉS EN CÉRAMIQUE, MODULE DE PUISSANCE, ET PROCÉDÉ POUR FABRIQUER UN COMPOSITE CÉRAMIQUE-CUIVRE

Publication
EP 3903980 A4 20220223 (EN)

Application
EP 19905496 A 20191226

Priority
• JP 2018248175 A 20181228
• JP 2019051108 W 20191226

Abstract (en)
[origin: EP3903980A1] A ceramic-copper composite having a flat plate shape, including: a ceramic layer; a copper layer; and a brazing material layer present between the ceramic layer and the copper layer, in which a specified Expression (1) is satisfied in a cut surface of the copper layer obtained when the ceramic-copper composite is cut at a plane perpendicular to a main surface of the ceramic-copper composite, where S(102)% is an area ratio occupied by copper crystals having a crystal orientation of which an inclination from a crystal orientation of (102) plane is within 10°, S(101)% is an area ratio occupied by copper crystals having a crystal orientation of which an inclination from a crystal orientation of (101) plane is within 10°, S(111)% is an area ratio occupied by copper crystals having a crystal orientation of which an inclination from a crystal orientation of (111) plane is within 10°, and S (112) % is an area ratio occupied by copper crystals having a crystal orientation of which an inclination from a crystal orientation of (112) plane is within 10°.

IPC 8 full level
B23K 1/00 (2006.01); **C04B 37/02** (2006.01); **H01L 23/12** (2006.01); **H01L 23/14** (2006.01); **H01L 23/15** (2006.01); **H05K 1/09** (2006.01); **B22F 1/05** (2022.01)

CPC (source: EP KR US)
B22F 7/04 (2013.01 - EP); **B23K 1/0016** (2013.01 - EP KR US); **B23K 1/19** (2013.01 - EP); **B23K 35/007** (2013.01 - EP); **B23K 35/0233** (2013.01 - EP); **B23K 35/0244** (2013.01 - EP); **B23K 35/025** (2013.01 - EP); **B23K 35/3006** (2013.01 - EP); **B23K 35/3601** (2013.01 - EP); **B23K 35/3613** (2013.01 - EP); **B23K 35/383** (2013.01 - EP); **B32B 3/30** (2013.01 - EP); **B32B 7/12** (2013.01 - EP); **B32B 9/005** (2013.01 - EP); **B32B 9/041** (2013.01 - EP); **B32B 15/20** (2013.01 - EP); **C04B 37/02** (2013.01 - KR); **C04B 37/023** (2013.01 - US); **C04B 37/026** (2013.01 - EP KR); **C22C 9/00** (2013.01 - EP); **H01L 23/12** (2013.01 - KR); **H01L 23/14** (2013.01 - KR); **H01L 23/15** (2013.01 - KR); **H01L 23/3735** (2013.01 - US); **H05K 1/0306** (2013.01 - US); **H05K 1/09** (2013.01 - KR US); **H05K 3/06** (2013.01 - US); **H05K 3/388** (2013.01 - EP); **B22F 1/05** (2022.01 - EP KR US); **B22F 9/082** (2013.01 - EP); **B23K 2101/36** (2018.07 - EP); **B23K 2101/42** (2018.07 - US); **B23K 2103/12** (2018.07 - EP US); **B23K 2103/18** (2018.07 - EP); **B23K 2103/52** (2018.07 - EP US); **B32B 2307/732** (2013.01 - EP); **B32B 2457/08** (2013.01 - EP); **C04B 2235/6567** (2013.01 - EP); **C04B 2235/6581** (2013.01 - EP); **C04B 2237/125** (2013.01 - EP KR US); **C04B 2237/343** (2013.01 - EP); **C04B 2237/348** (2013.01 - EP); **C04B 2237/365** (2013.01 - EP); **C04B 2237/366** (2013.01 - EP); **C04B 2237/368** (2013.01 - EP US); **C04B 2237/407** (2013.01 - EP KR US); **C04B 2237/52** (2013.01 - US); **H01L 23/15** (2013.01 - EP); **H05K 1/0306** (2013.01 - EP); **H05K 2201/0355** (2013.01 - US); **H05K 2203/1126** (2013.01 - US)

Citation (search report)
• [A] JP 2017075382 A 20170420 - SH COPPER PRODUCTS CORP
• [A] EP 3370488 A1 20180905 - DOWA METALTECH CO LTD [JP]
• [A] WO 2018221493 A1 20181206 - DENKA COMPANY LTD [JP] & EP 3632879 A1 20200408 - DENKA COMPANY LTD [JP]
• [A] JP 2016115821 A 20160623 - NGK ELECTRONICS DEVICES INC
• See references of WO 2020138283A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
EP 3903980 A1 20211103; **EP 3903980 A4 20220223**; **EP 3903980 B1 20230322**; CN 113226610 A 20210806; CN 113226610 B 20220816; JP 7212700 B2 20230125; JP WO2020138283 A1 20211118; KR 20210107699 A 20210901; US 2022225498 A1 20220714; WO 2020138283 A1 20200702

DOCDB simple family (application)
EP 19905496 A 20191226; CN 201980086356 A 20191226; JP 2019051108 W 20191226; JP 2020562405 A 20191226; KR 20217020347 A 20191226; US 201917418888 A 20191226